



December 30, 1993

Regional Administrator  
USEPA Region VII  
726 Minnesota Avenue  
Kansas City, KS 66101

ATTN: Mr. Wes Bartley

RE: Quarterly Progress Report on Assessment/Remediation Under Corrective Action, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas (KSD000809723)

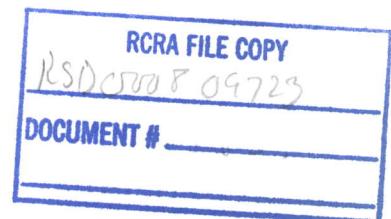
Dear Mr. Bartley:

Safety-Kleen Corp. (S-K) has completed closure of an underground storage tank (UST) and an inactive return/fill station at the Wichita Service Center. The two-year closure period ended on June 10, 1993. Partial facility closure activities performed at the facility are summarized in the Closure Certification Report dated August 9, 1993, and the Quarterly Progress Report dated June 30, 1993.

Since the end of the partial facility closure period, S-K has continued ground-water assessment/monitoring activities under corrective action. In a letter dated April 2, 1993, S-K presented a workplan for performing a two-phase offsite/down-gradient ground-water assessment. Phase I activities (assessment of lateral and vertical extent of ground-water quality degradation) were completed in May 1993 and reported in the June 30, 1993 Quarterly Progress Report. Phase II activities, which included design and installation of three additional down-gradient monitoring wells, were completed during the week of December 13, 1993.

Quarterly ground-water monitoring of the existing onsite and new offsite monitoring wells was conducted on December 20 and 21, 1993. Additionally, S-K performed quarterly maintenance on the operating soil vapor extraction system (SVES). S-K intends to continue operating the existing SVES to ensure complete remediation and assist in mitigating ground-water impacts through enhanced volatilization and biodegradation.

This quarterly progress report is being submitted to comply with reporting requirements in the Hazardous and Solid Waste Amendments



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(HSWA) to the Facility Operating Permit (reference Part II, Section 4). This report summarizes the assessment, maintenance, and monitoring activities performed at the Wichita Service Center between October 1, 1993, and December 31, 1993. Future assessment and remediation implemented under corrective action will be addressed as necessary.

Work Completed During Reporting Period

1. During the week of December 13, 1993, S-K installed three shallow offsite/down-gradient ground-water monitoring wells per Phase II April 2, 1993, letter/workplan to USEPA and KDHE. Placement and design of the wells were based on data collected during the Phase I ground-water investigation, and are summarized below:
  - a. Three shallow ground-water monitoring wells were installed by S-K at 1325 South Anna, Wichita, Kansas. This property is adjacent and south of the Wichita Service Center (Figure A-1). Access to the property was granted to S-K per an agreement with the other property owner, dated November 20, 1993. Drilling and well development services were provided by Layne, Inc. (Wichita, Kansas).
  - b. Drilling activities were completed on December 15, 1993. Soil samples were collected from each borehole using a split barrel continuous sampler with a sand trap. Use of the sand trap below the water table allowed sufficient retention of sediments to accurately log the borehole. Borehole logs are included in Attachment B. Drilling and sampling equipment were decontaminated between boreholes. Decontamination water and soil cuttings were containerized separately for disposal by S-K.
  - c. Well completion data are listed in Table A-1 (Attachment A). All of the new monitoring wells consist of 4 inch diameter Schedule 40 PVC casing with 0.010-inch factory slot Schedule 40 PVC screen. Each well was drilled to a total depth of approximately 20 feet below ground surface (ft-bgs). Ground water was encountered at approximately 10 ft-bgs. As shown on the well logs and completion diagrams in Attachment B, the wells were sealed with bentonite chips hydrated with potable water. To ensure thorough hydration, the water and bentonite chips were placed simultaneously.

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- d. Well development activities were completed on December 16, 1993, using a bail and surge technique. Approximately ten well volumes of water were removed from each well during development. Development water was containerized for disposal by S-K.
  - e. Measuring point elevations were surveyed by Terra Tech Land Surveying, Inc. (Wichita, Kansas) on December 20, 1993, relative to existing monitoring wells. The measuring point of each well was established as the north side of the well casing. Relative measuring point elevations are listed in Table A-1.
2. During the week of December 13, 1993, S-K repaired two existing monitoring wells (A-1 and A-5) which had been damaged/disturbed during previous facility operations. The condition of these wells was reported to USEPA and KDHE in the June 30, 1993 quarterly progress report. The wells were repaired by Layne, Inc. (Wichita, Kansas) as shown in Attachment C, and summarized below:
- a. A 4-inch PVC slip coupling (without glue) was used to add a 11.5-inch extension to the well casing at Well A-1. The slip coupling and casing extension were secured/sealed in concrete. A new protective steel "Christie box" was installed flush with the existing concrete grade. The concrete surface seal was graded to allow surface runoff to drain away from the well.
  - b. The top of the well casing at Well A-5 was lowered 3.4 inches, and a new protective steel "Christie box" was installed flush with the existing concrete grade. The concrete surface seal was graded to allow surface runoff to drain away from the well.
  - c. New measuring point elevations were established for wells A-1 and A-5. The elevation of the north side of the PVC casing at each well was surveyed relative to the existing monitoring wells. Terra Tech Land Surveying, Inc., (Wichita, Kansas) provided surveying services.
3. S-K conducted quarterly ground-water quality monitoring on December 20 and 21, 1993. The quarterly monitoring event included field measurements and laboratory analyses for five onsite (wells A-1 to A-5) and three offsite/down-gradient (A-6 to A-8) monitoring wells.

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- a. S-K measured fluid levels and prepared the wells for sample collection on December 20, 1993. A minimum of three well volumes were removed by bailing to insure representative ground-water samples were collected. Field measurements of pH, temperature, and specific conductance were taken during preparation of the new offsite/down-gradient wells until stable readings were reached.
  - b. S-K collected samples for laboratory analysis from all eight monitoring wells (A-1 to A-8). Field blank and equipment blank samples were submitted to the laboratory for QA/QC. Table A-2 lists water quality parameters and analytical methods specified for the Wichita ground-water samples.
4. A full-scale SVES has operated continuously since commencing operation on October 27, 1991, with the exception of periodic shutdowns for maintenance and performance testing.
- a. S-K monitors the operation of the SVES on a daily basis. The operating records recorded in 1993 are presented in Attachment D. The operational data recorded during this reporting period indicate continued steady-state operation of the SVES.
  - b. S-K performed quarterly maintenance of the SVES on December 20, 1993. The water knock-out container and condensate sump were drained/bailed. S-K visually inspected the SVES and lubricated the exhauster bearings.
  - c. No other modifications were made to the SVES during this reporting period.

#### Summaries of Findings

1. The ground-water quality monitoring results from the December 1993 event are summarized below:
  - a. Water levels measured on December 20, 1993, are summarized in Table A-1 and indicate a southeasterly ground-water flow direction (Figure A-1). Field measurements obtained during the quarterly ground-water monitoring events are presented in Table A-3 (Attachment A). Note, the specific conductance measurements have been corrected

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- to  $\mu\text{mhos}/\text{cm}$  at a standard temperature of  $25^\circ\text{C}$ . A temperature correction coefficient of 0.0187, determined during the October 1989 event, was used in the conversion.
- b. Tables A-4 and A-5 (Attachment A) summarize water quality data collected to date. The December 1993 ground-water samples are currently being analyzed by GTEL Laboratories (Wichita, Kansas). These results will be presented in the next quarterly progress report (March 1994).
  2. A measurable product thickness was not detected in any of the wells during the December 1993 fluid level monitoring event.
  3. S-K continues to monitor the SVES on a daily basis.
    - a. The SVES is currently operating at a total air flowrate of 368 scfm. Wellhead vacuums were not measured during the December 1993 monitoring event. S-K is continuing to operate the SVES unit to assist in remediating and mitigating ground-water impacts. S-K believes the elevation increase at the vent wells may be mitigating or minimizing offsite migration of ground-water impacts.
    - b. During the December 1993 monitoring event, SVES emissions were monitored using a field photoionization detector (PID). The field screening measurements continue to indicate nondetectable VOC concentrations in the SVES emissions. This data is consistent with the May 1993 soil quality verification results which indicated complete remediation of soils in the unsaturated zone. Reference Closure Certification Report dated August 9, 1993.

#### Summaries of Problems

1. Limited ground-water impacts were identified during the May 1993 offsite/down-gradient assessment. S-K is currently assessing the extent/degree of these impacts through implementation of the Phase II activities described in this progress report. Additional assessment/remediation (if necessary) will be based on the final/approved risk assessment and data collected during monitoring under corrective action. S-K will continue to monitor ground-water quality at the five onsite and three offsite wells on a quarterly basis.

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2. The closure period ended on June 10, 1993; however, the risk assessment which establishes proposed clean-up objectives for ground water is still under review by KDHE and USEPA. Mutually agreeable clean-up objectives would be beneficial in evaluating possible future assessment/remediation activities under corrective action.

Projected Work for Next Reporting Period

1. S-K will continue ongoing remediation activities implemented in accordance with the approved Closure Plan. These activities are now being incorporated under the corrective action provision of the facility's operating permit. Activities scheduled during the next quarter include:
  - a. Quarterly monitoring of the SVES (next monitoring event scheduled for February or March 1994); and
  - b. Quarterly ground-water monitoring (next event scheduled for February or March 1994).
2. S-K intends to continue monitoring the SVES performance with a portable PID, and discontinue sampling for laboratory analysis. If total organic vapor concentrations are measured above background in the emissions, S-K will resume sampling for laboratory analysis. However, the most recent analytical data have indicated non-detectable concentrations of mineral spirits and VOCs.
3. S-K intends to design an appropriate ground-water remediation program. S-K will work with KDHE and USEPA to implement an effective ground-water remediation program following definition of the extent of impacts.
4. S-K has scheduled a meeting with KDHE and USEPA for January 12 or 13, 1994. The purpose of the meeting will be to discuss the project status and develop an approach to future activities.
5. S-K will submit the next quarterly progress report on or by March 31, 1993.

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S-K appreciates the cooperation and assistance which USEPA and KDHE have provided on this closure project. If you have any questions, please feel free to contact Jack Bedessem (TriHydro Corporation) at (307) 745-7474 or me at (713) 280-9754.

Sincerely,  
SAFETY-KLEEN CORP.

*Joe Herrin TM*

Joe Herrin  
Senior Project Manager - Remediation

BH:lrb/679

cc: Curtis Lesslie - KDHE  
Gary Long - Safety-Kleen Corp.  
Karen White - Safety-Kleen Corp.  
TriHydro Corporation

ATTACHMENT A

TABLES AND FIGURES

CORRECTIVE ACTION  
QUARTERLY PROGRESS REPORT  
SAFETY-KLEN CORP. SERVICE CENTER  
WICHITA, KANSAS

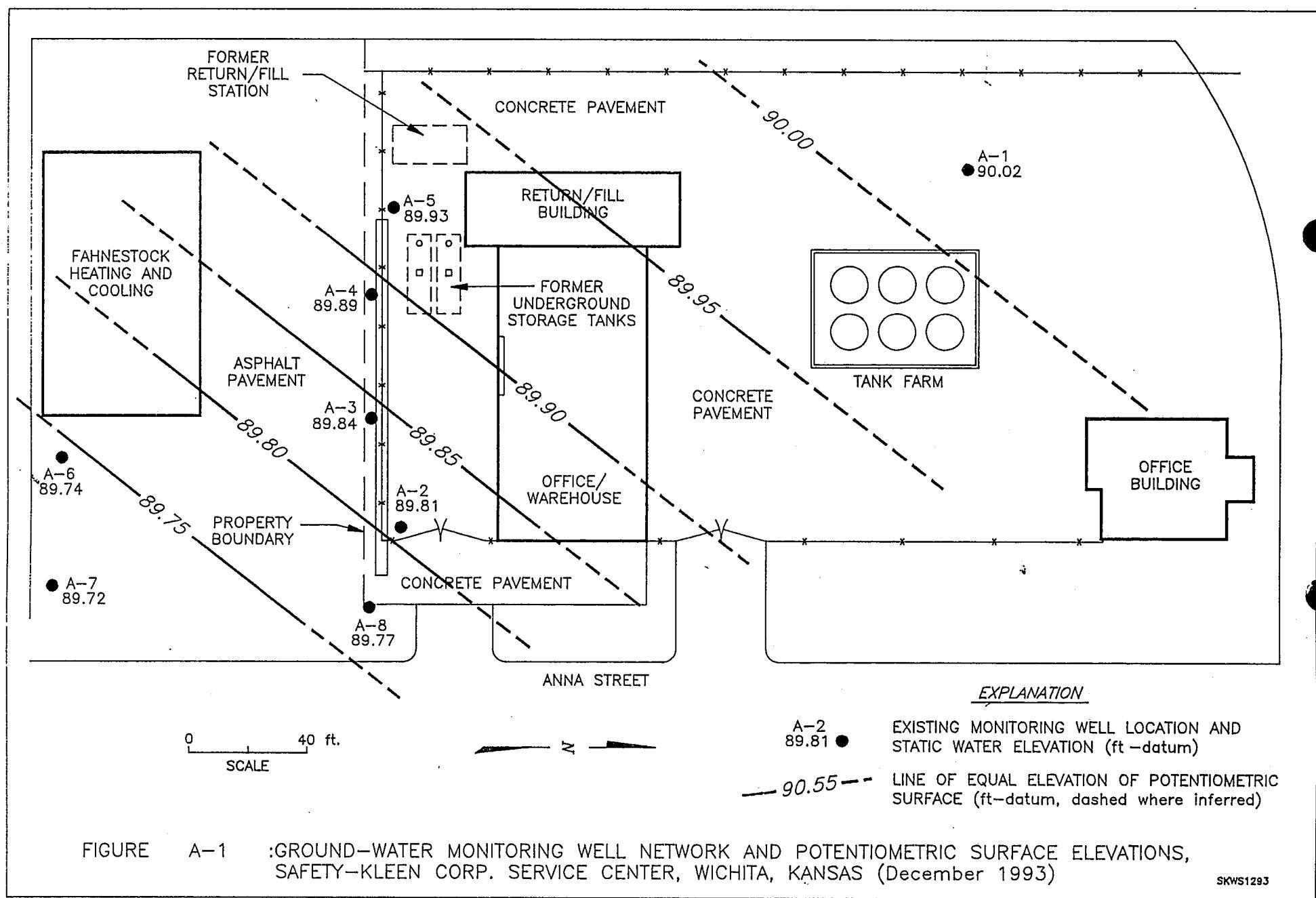


FIGURE A-1 GROUND-WATER MONITORING WELL NETWORK AND POTENTIOMETRIC SURFACE ELEVATIONS,  
SAFETY-KLEEN CORP. SERVICE CENTER, WICHITA, KANSAS (December 1993)

SKWS1293

Table A-1. Monitoring Well Completion Summary, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas.

Well	Date of Measurement	Approximate Grade Elev. (ft-datum) <sup>1</sup>	Measuring Point Elevation (ft-datum) <sup>1</sup>	Total Depth Cased (ft-bgs) <sup>2</sup>	Casing Diameter (in)	Casing Type	Elevation Screened Interval (ft-datum) <sup>1</sup>	Depth to Hydro-carbon (ft-bmp) <sup>3</sup>	Gauged Depth to Water (ft-bmp) <sup>3</sup>	Hydro-carbon Thickness (ft)	Corrected Static Water Elevation (ft-datum) <sup>1</sup>	Total Measured (ft-bmp) <sup>3</sup>
									Hydro-carbon Interval (ft-datum) <sup>1</sup>			
A-1	10-19-89	100.5	100.48	17.5	4	PVC	83.5-93.5	--	11.18	--	89.30	17.5
	11-16-89							--	11.33	--	89.25	--
	06-07-90							--	11.39	--	89.09	--
	07-18-91							--	12.66	--	87.82	--
	10-14-91							--	12.38	--	88.10	17.5
	01-15-92							--	12.39	--	88.09	17.0
	05-20-92							--	12.07	--	88.41	--
	08-25-92							--	11.77	--	88.71	--
	11-18-92							--	11.76	--	88.72	17.0
	02-10-93							--	10.80	--	89.68	--
	05-21-93							--	9.05	--	91.43	--
	09-03-93							--	9.87	--	90.61	--
	12-20-93	101.72	101.44	18.5				--	11.42	--	90.02	17.84
A-2	10-19-89	100.7	100.71	19.5	4	PVC	81.7-91.7	--	11.59	--	89.12	19.5
	11-16-89							--	12.23	--	88.96	--
	06-07-90							--	11.81	--	88.90	--
	07-18-91							--	13.09	--	87.62	19.15
	10-14-91							--	12.83	--	87.88	19.5
	01-15-92							--	12.79	--	87.92	19.10
	05-20-92							--	12.49	--	88.22	--
	08-25-92							--	12.18	--	88.53	--
	11-18-92							--	12.19	--	88.52	19.0
	02-10-93							--	11.24	--	89.47	--
	05-21-93							--	9.63	--	91.08	--
	09-03-93							--	10.32	--	90.39	--
	12-20-93	101.05	100.69					--	10.90	--	89.81	19.10
A-3	10-19-89	101.2	101.22	18.5	4	PVC	83.2-93.2	--	12.75	--	88.47	18.5
	11-16-89							--	12.25	--	88.97	--
	06-07-90							--	12.27	--	88.95	--
	07-18-91							--	13.59	--	87.63	17.84
	10-14-91							--	13.32	--	87.90	18.5
	01-15-92							--	13.28	--	87.94	17.8
	05-20-92							--	12.98	--	88.24	--
	08-25-92							--	12.66	--	88.56	--
	11-18-92							--	12.68	--	88.54	18.0
	02-10-93							--	11.71	--	89.51	--
	5-21-93							--	10.11	--	91.11	--

Table A-1. Monitoring Well Completion Summary, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas (continued).

Well	Date of Measurement	Approximate Grade Elev. (ft-datum) <sup>1</sup>	Measuring Point Elevation (ft-datum) <sup>1</sup>	Total Depth Cased (ft-bgs) <sup>2</sup>	Casing Diameter (in)	Casing Type	Elevation Screened Interval (ft-datum) <sup>1</sup>	Depth to Hydro- carbon (ft-bmp) <sup>3</sup>	Gauged Depth to Water (ft-bmp) <sup>3</sup>	Hydro- carbon Thickness (ft)	Corrected Static Water Elevation (ft-datum) <sup>1</sup>	Total Depth Measured (ft-bmp) <sup>3</sup>
<b>A-3 (continued)</b>												
	09-03-93							--	10.83	--	90.39	--
	12-20-93	101.39	101.20					--	11.38	--	89.84	17.80
<b>A-4</b>	10-19-89	101.3	101.25	18.5	4	PVC	83.3-93.3	--	12.80	--	88.45	18.5
	11-16-89							--	11.75	--	89.02	--
	06-07-90							--	12.28	--	88.97	--
	07-18-91							13.30	14.59	1.29	87.67	17.85
	10-14-91							13.25	13.65	0.40	87.91	18.5
	01-15-92							--	13.27	--	87.98	17.8
	05-20-92							--	12.98	--	88.27	--
	08-25-92							--	12.67	--	88.58	--
	11-18-92							--	12.68	--	88.57	18.0
	02-10-93							--	11.69	--	89.56	--
	05-21-93							--	10.09	--	91.16	--
	09-03-93							--	10.85	--	90.40	--
	12-20-93	101.50	101.24					--	11.36	--	89.89	17.82
<b>A-5</b>	07-18-91	101.8	101.77	19.7	4	PVC	82.4-92.4	--	14.04	--	87.73	19.40
	10-14-91							--	13.80	--	87.97	19.0
	01-15-95							--	13.73	--	88.04	19.40
	05-20-92							--	13.46	--	88.31	--
	08-25-92							--	13.10	--	88.67	--
	11-18-92							--	13.16	--	88.61	19.5
	02-10-93							--	12.16	--	89.61	--
	05-21-93							--	10.57	--	91.20	--
	09-03-93							--	11.31	--	90.46	--
	12-20-93	101.86	101.49	19.4				--	11.56	--	89.93	19.12
<b>A-6</b>	12-20-93	101.51	101.06	18.75	4	PVC	82.64-92.64	--	11.32	--	89.74	18.30
<b>A-7</b>	12-20-93	100.00	99.57	18.30	4	PVC	81.60-91.60	--	9.85	--	89.72	17.90
<b>A-8</b>	12-20-93	100.00	99.30	17.30	4	PVC	82.33-92.33	--	9.53	--	89.77	16.68

Notes: <sup>1</sup> Datum is an assigned elevation of 100 feet for the top of the casing of the existing water well on the Safety-Kleen site.<sup>2</sup> bgs = below ground surface<sup>3</sup> bmp = below measuring point

Table A-2. Water Quality Parameters and Analytical Methods,  
Safety-Kleen Corp. Service Center, Wichita,  
Kansas.

Constituent	EPA Method <sup>a</sup>
Mineral Spirits	ASTM D3328/EPA 8015 (Modified)
Volatile Organic Compounds (38)	8240
Cadmium, total	6010
Chromium, total	6010
Lead, total	7421

Notes

<sup>a</sup> Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (EPA SW-846) or equivalent.

Table A-3. Ground-Water Quality, Field Measurements and Observations, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas.

Well	Sampling Date	Temperature (°C)	pH (std. units)	Specific Conductance <sup>1</sup> (μmhos/cm @ 25°C)	Field Observations
A-1	10-19-89	15.2	7.61	624	Slight turbidity, light gray to brown
	07-18-91	20.5	6.97	742	Slight turbidity, tan silts, no hydrocarbon sheen
	10-14-91	18.1	7.44	1,355	Moderate turbidity, brown silt
	01-15-92	11.8	7.68	611	Moderate turbidity, tan silt
	05-20-92	16.4	7.10	877	Slight turbidity, gray silts, no sheen
	08-25-92	21.1	6.78	908	Clear, no turbidity, no sheen
	11-18-92	17.4	7.1 <sup>2</sup>	933	Slight turbidity, gray silts, no sheen
	02-10-93	13.4	7.11	908	Slight turbidity, cloudy, gray silts, no sheen
	05-22-93	14.4	8.66	688	Slight turbidity, brown silts, no sheen
	08-28-93	21.2	7.01	744	Slight turbidity, no color or odor, no sheen
	12-20-93	14.7	7.44	1,115	Very slight turbidity, tan tint, no sediment, no sheen
A-2	10-19-89	15.6	7.15	1,049	Slight turbidity, light brown
	07-18-91	19.5	7.13	847	Very slight turbidity, tan silts
	10-14-91	19.8	7.08	930	Slight turbidity, light brown silt
	01-15-92	11.1	7.62	858	Clear, tan silt
	05-20-92	17.9	7.24	824	Clear, no turbidity, no sheen
	08-25-92	21.6	6.87	770	Very slight turbidity, tan silts, no sheen
	11-18-92	18.7	7.0 <sup>2</sup>	769	Clear, no turbidity, no sheen
	02-10-93	13.6	7.38	611	Clear, no sheen
	05-22-93	14.9	8.56	616	Clear, no sheen
	08-28-93	21.1	7.04	564	Clear, no odor or sheen
	12-20-93	14.3	7.31	774	Clear, tan tint, no sediment, no sheen
A-3	10-19-89	16.9	7.34	1,042	Slight turbidity, gray/brown color
	07-18-91	19.6	7.23	868	Sight turbidity, gray silts, no hydrocarbon sheen
	10-14-91	21.0	6.84	1,046	Moderate turbidity, gray silts
	01-15-92	9.9	7.54	907	Slight turbidity, gray silt
	05-20-92	18.3	7.48	349	Slight to moderate turbidity, tan silts, no sheen
	08-25-92	22.0	6.71	814	Clear, no turbidity, no sheen
	11-18-92	18.6	7.0 <sup>2</sup>	834	Slight turbidity, gray silts, no sheen
	02-10-93	13.2	7.25	698	Clear, no sheen
	05-22-93	15.5	8.64	714	Very slight turbidity, no sheen
	08-28-93	22.5	7.10	662	Clear, slight turbidity, no odor or sheen
	12-20-93	11.9	7.30	831	Slightly cloudy, zero turbidity, tan tint, no sediment, no sheen
A-4	10-19-89	16.2	7.31	1,095	Slight turbidity, brown silt, sparse ribbons of hydrocarbon sheen
	07-18-91	19.7	7.30	877	Slight turbidity, tan silts, red flocs, hydrocarbon sheen
	10-14-91	20.2	6.85	1,016	Slight turbidity, light gray tint, hydrocarbon sheen
	01-15-92	11.2	7.42	933	Very slight turbidity, tan, slit, sparse ribbons of hydrocarbon sheen

Table A-3. Ground-Water Quality, Field Measurements and Observations, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas (continued).

Well	Sampling Date	Temperature (°C)	pH (std. units)	Specific Conductance <sup>1</sup> (μmhos/cm @ 25°C)	Field Observations
<b>A-4 (continued)</b>					
	05-20-92	18.4	7.10	736	Very slight to no turbidity, tan silts, sparse ribbons of hydrocarbon sheen
	08-25-92	22.8	6.68	650	Clear, very light green tint, suspended black particles, very sparse ribbons hydrocarbon sheen
	01-18-92	19.0	6.8 <sup>2</sup>	737	Slight turbidity, tan silts, black flocs, hydrocarbon sheen
	02-10-93	13.9	6.93	695	Clear, yellow tint, black particle suspensions, very slight hydrocarbon sheen
	05-22-93	15.3	8.65	618	Slightly turbid, yellow tint, no sheen
	08-28-93	20.9	6.62	718	Low turbidity, brownish-yellow color, slight hydrocarbon odor, hydrocarbon spotting
	12-20-93	14.0	7.13	757	Clear, zero turbidity, tan tint, no sediment, no sheen
<b>A-5</b>					
	10-19-89	--	--	--	--
	07-18-91	19.1	7.20	933	Slight turbidity, gray silts, no hydrocarbon sheen
	10-14-91	19.6	7.07	1,024	Moderate turbidity, grayish brown silt, no sheen
	01-15-92	10.6	7.78	738	Very slight turbidity, tan silt
	05-20-92	17.5	7.19	707	Slight turbidity, gray silts, no sheen
	08-25-92	21.5	6.92	567	Very slight turbidity, gray silts, no sheen
	11-18-92	18.0	6.9*	772	Slight turbidity, tan silts, no sheen
	02-10-93	13.2	7.30	621	Clear, no sheen
	05-22-93	14.4	6.87	494	Clear, no sheen
	08-28-93	21.5	7.40	554	Clear, no odor or sheen
	12-20-93	12.1	7.44	813	Very slight turbidity, tan tint, no sediment, no sheen
<b>A-6</b>					
	12-20-93	13.7	7.41	896	Very slight turbidity, tan tint, no sediment, no sheen
<b>A-7</b>					
	12-20-93	14.0	7.34	885	Slight turbidity, orange-tan, no sediment, no sheen
<b>A-8</b>					
	12-20-93	14.4	7.54	798	Slight turbidity, orange-tan, no sediment, no sheen
<b>TAP</b>					
	10-19-89	17.1	7.86	814	Clean

<sup>1</sup> Specific conductances have been converted to μmhos/cm at 25°C using a temperature correction coefficient of 0.0187 determined during the October 1989 monitoring event.

<sup>2</sup> Due to field instrument malfunction, pH was measured in the laboratory within 24 hours of sample collection.

Table A-4. Summary of Ground-Water Quality Data, Organic Constituents, Safety-Kleen Corp. Branch Center, Wichita, Kansas.

Sampling Well	Mineral Spirits	Carbon Disulfide	Volatile Organic Constituents (mg/L)											
			1,1-Dichloroethane	1,2-Dichloroethane	1,2-Dichloroethene (total)	1,1,1-Trichloroethane	Toluene	Ethylbenzene	Xylenes (total)	1,2-Dichlorobenzene	1,2-Dichlorobenzene	1,4-Chlorobenzene	All Others	
A-1	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND(0.005)	ND	
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	10-14-91	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	01-15-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	05-20-92	ND(0.090)	0.006	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	08-25-92	ND(0.090)	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	11-18-92	ND(0.090)	0.023	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	02-10-93	ND(0.100)	0.006	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	05-22-93	ND(0.100)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)	ND(0.005)	ND	
	08-28-93	ND(0.100)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)	ND(0.005)	ND	
A-2	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND(0.005)	ND	
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	10-14-91	ND(0.200)	ND(0.005)	ND(0.005)	ND(0.005)	0.008	ND(0.005)	ND(0.005)	ND(0.005)	0.011	0.007	ND(0.005)	ND(0.005)	
	01-15-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	0.014	ND(0.005)	ND(0.005)	ND(0.005)	0.009	0.012	0.005	ND(0.005)	
	05-20-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	0.006	ND(0.005)	ND(0.005)	ND(0.005)	0.0089	0.0099	ND(0.005)	ND(0.005)	
	08-25-92	1.10	ND(0.005)	ND(0.005)	ND(0.005)	0.016	ND(0.005)	ND(0.005)	ND(0.005)	0.024	0.016	0.007	ND(0.005)	
	11-18-92	0.460	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.018	0.0088	0.0055	0.0056	
	02-10-93	0.480	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.007	0.027	0.007	0.006	
	05-22-93	0.490	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0055	ND(0.010)	ND(0.010)	ND(0.005)	
	08-28-93	0.820	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.013	0.026	ND(0.010)	ND(0.010)	
A-3	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND(0.005)	ND	
	7-18-91	0.120	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.006	ND(0.005)	ND(0.005)	ND	
	10-14-91	ND(0.500)	ND(0.005)	ND(0.005)	0.007	0.013	ND(0.005)	ND(0.005)	ND(0.005)	0.013	0.028	0.011	ND(0.005)	
	01-15-92	ND(0.500)	0.009	ND(0.005)	ND(0.005)	0.005	ND(0.005)	ND(0.005)	ND(0.005)	0.018	0.012	ND(0.005)	ND(0.005)	
	05-20-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	08-25-92	1.50	0.014	0.006	ND(0.005)	0.024	ND(0.005)	0.008	0.015	0.074	0.037	0.014	ND(0.005)	
	11-18-92	0.640	ND(0.005)	ND(0.005)	ND(0.005)	0.0060	ND(0.005)	ND(0.005)	0.0059	0.027	0.011	0.007	0.0059	
	02-10-93	0.310	ND(0.005)	ND(0.005)	ND(0.005)	0.007	ND(0.005)	ND(0.005)	0.012	0.043	0.013	0.012	0.013	
	05-22-93	0.400	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0098	ND(0.010)	ND(0.010)	ND(0.005)	
	08-28-93	0.860	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.007	0.039	0.012	0.016	
A-4	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND	
	7-18-91	150	ND(0.005)	ND(0.005)	ND(0.005)	0.020	0.008	0.045	0.032	0.250	0.046	0.017	ND(0.005)	
	10-14-91	600	ND(0.010)	ND(0.010)	ND(0.010)	0.013	ND(0.010)	0.041	0.060	0.450	0.083	0.036	ND(0.005)	
	01-15-92	4.6	ND(0.005)	ND(0.005)	ND(0.005)	0.012	0.005	ND(0.005)	0.015	0.100	0.027	0.014	ND(0.005)	
	05-20-92	3.6	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0064	ND(0.005)	0.019	0.059	0.036	0.015	ND(0.005)	
	08-25-92	5.0	ND(0.005)	0.005	ND(0.005)	0.014	ND(0.005)	ND(0.005)	0.030	0.130	0.044	0.020	ND(0.005)	

Table A-4. Summary of Ground-Water Quality Data, Organic Constituents, Safety-Kleen Corp. Branch Center, Wichita, Kansas (continued).

Well	Sampling Date	Mineral Spirits	Volatile Organic Constituents (mg/L)											
			Carbon Disulfide	1,1-Dichloroethane	1,2-Dichloroethane	1,2-Dichloroethene (total)	1,1,1-Trichloroethane	Toluene	Ethylbenzene	Xylenes (total)	1,2-Dichlorobenzene	1,2-Dichlorobenzene	1,4-Chlorobenzene	All Others
			ND(0.005)	ND(0.005)	ND(0.005)	0.0087	ND(0.005)	ND(0.005)	0.020	0.130	0.035	0.016	ND(0.005)	ND
A-4	11-18-92	5.2	ND(0.005)	ND(0.005)	ND(0.005)	0.0087	ND(0.005)	ND(0.005)	0.020	0.130	0.035	0.016	ND(0.005)	ND
	02-10-93	3.3	0.041	ND(0.005)	ND(0.005)	0.012	ND(0.005)	ND(0.005)	0.037	0.180	0.061	0.026	ND(0.005)	ND
	05-22-93	0.81	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)	ND(0.005)	ND
	08-28-93	2.0	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.022	0.110	0.041	0.017	ND(0.005)	ND
A-5	10-19-89	--	--	--	--	--	--	--	--	--	--	--	--	ND
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	10-14-91	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	01-15-92	ND(0.090)	0.022	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	05-20-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	08-25-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	11-18-92	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	02-10-93	ND(0.100)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	05-22-93	ND(0.100)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)	ND(0.005)	ND
	08-28-93	ND(0.100)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)	ND(0.005)	ND
S-K Tap	10-19-89	ND(50.0)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	--	--
KAL	--	--	--	0.005	0.005	0.070	0.200	2.0	0.680	0.440	0.620	0.075	0.060	--
MCL	--	--	--	--	0.005	0.07/0.10*	0.200	1.0	0.70	10.0	0.60	0.075	0.100**	--

ND = not detected above analytical limits in parentheses.

-- indicates sample not analyzed for constituent.

Samples collected in October 1989 were analyzed for 40 CFR 264 Appendix IX volatile and semi-volatile organic compounds (Well A-4 only). All ND.

Samples collected in July 1991, October 1991, and January 1992 were analyzed for mineral spirits by modified 8015 and volatile organic compounds by 8240 (SW-846).

Chromatographic data indicates the presence of non-target hydrocarbons that cannot be qualitatively identified as mineral spirits in wells A-2, A-3, and A-4.

KAL = Kansas Action Level (based on June 1988 published levels).

MCL = USEPA maximum contaminant level (based on November 1992 published levels).

Field and equipment blanks were prepared during the January 1992 monitoring event to verify QA/QC. None of the constituents analyzed for were detected in the blanks.

\* USEPA MCL for cis-1,2-Dichloroethene and trans-1,2-Dichloroethene.

\*\* Listed for monochlorobenzene, a synonym.

Table A-5. Summary of Ground-Water Quality Data, Inorganic Constituents, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas.

Well	Sampling Date	Inorganic Constituents (mg/L)		
		Cadmium	Chromium	Lead
A-1	10-19-89	ND (0.01)	ND (0.04)	0.004
	7-18-91	ND (0.005)	0.060	ND (0.005)
	10-14-91	ND (0.005)	0.980	0.025
	01-15-92	ND (0.005)	0.230	0.008
	05-20-92	ND (0.005)	0.130	0.005
	08-25-92	0.008*	0.040	ND (0.005)
	11-18-92	ND (0.005)	0.033	ND (0.005)
	02-10-93	ND (0.005)	0.039	ND (0.005)
	05-22-93	ND (0.005)	0.024	ND (0.005)
	08-28-93	ND (0.005)	0.022	0.008**
A-2	10-19-89	ND (0.01)	ND (0.04)	ND (0.003)
	7-18-91	ND (0.005)	ND (0.010)	ND (0.005)
	10-14-91	ND (0.005)	ND (0.020)	0.007
	01-15-92	ND (0.005)	ND (0.010)	ND (0.005)
	05-20-92	ND (0.005)	ND (0.010)	ND (0.005)
	08-25-92	0.007*	ND (0.010)	ND (0.005)
	11-18-92	ND (0.005)	ND (0.010)	ND (0.005)
	02-10-93	ND (0.005)	ND (0.010)	ND (0.005)
	05-22-93	ND (0.005)	ND (0.010)	ND (0.005)
	08-28-93	ND (0.005)	ND (0.010)	0.007
A-3	10-19-89	ND (0.01)	0.05	0.009
	7-18-91	ND (0.01)	0.016	ND (0.005)
	10-14-91	ND (0.005)	ND (0.020)	0.023
	01-15-92	ND (0.005)	ND (0.010)	ND (0.005)
	05-20-92	ND (0.005)	ND (0.010)	ND (0.005)
	08-25-92	0.007*	ND (0.010)	ND (0.005)
	11-18-92	ND (0.005)	ND (0.010)	ND (0.005)
	02-10-93	ND (0.005)	ND (0.010)	ND (0.005)
	05-22-93	ND (0.005)	ND (0.010)	ND (0.005)
	08-28-93	ND (0.005)	ND (0.010)	ND (0.005)
A-4	10-19-89	ND (0.01)	ND (0.04)	0.014
	7-18-91	ND (0.005)	0.016	ND (0.005)
	10-14-91	ND (0.005)	ND (0.020)	0.150
	01-15-92	ND (0.005)	ND (0.010)	0.014
	05-20-92	ND (0.005)	ND (0.010)	0.006
	08-25-92	0.007*	ND (0.010)	0.005
	11-18-92	ND (0.005)	ND (0.010)	ND (0.005)
	02-10-93	ND (0.005)	ND (0.010)	ND (0.005)
	05-22-93	ND (0.005)	ND (0.010)	ND (0.005)
	08-28-93	ND (0.005)	ND (0.010)	ND (0.005)
A-5	7-18-91	ND (0.005)	0.013	ND (0.005)
	10-14-91	ND (0.005)	0.027	0.034
	01-15-92	ND (0.005)	0.063	0.005
	05-20-92	ND (0.005)	0.017	ND (0.005)
	08-25-92	0.007*	ND (0.010)	ND (0.005)
	11-18-92	ND (0.005)	ND (0.010)	ND (0.005)
	02-10-93	ND (0.005)	ND (0.010)	ND (0.005)

Table A-5. Summary of Ground-Water Quality Data, Inorganic Constituents, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas (continued).

Well	Sampling Date	Inorganic Constituents (mg/L)		
		Cadmium	Chromium	Lead
A-5 (continued)	05-22-93	ND(0.005)	ND(0.010)	ND(0.005)
	08-28-93	ND(0.005)	ND(0.010)	ND(0.005)
S-K Tap	10-19-89	ND(0.01)	ND(0.04)	ND(0.003)
KAL	--	0.005	0.050	0.050
MCL	--	0.005	0.10	0.015

\* Constituent detected in both the equipment blank and field blank samples (reference laboratory data sheets)

ND = Not Detected above analytical detection limits in parentheses.

KAL = Kansas Action Level

MCL = USEPA Maximum Contaminant Level or Action Level

\*\* = The matrix spike and matrix spike duplicate percents recoveries for lead were below acceptability limits due to matrix interference as proven by the analytical spike.

ATTACHMENT B

WELL LOGS AND COMPLETION DIAGRAMS

CORRECTIVE ACTION  
QUARTERLY PROGRESS REPORT  
SAFETY-KLEEN CORP. SERVICE CENTER  
WICHITA, KANSAS



TriHydro Corporation  
920 Sheridan Street  
Laramie, Wyoming 82070  
(307) 745-7474

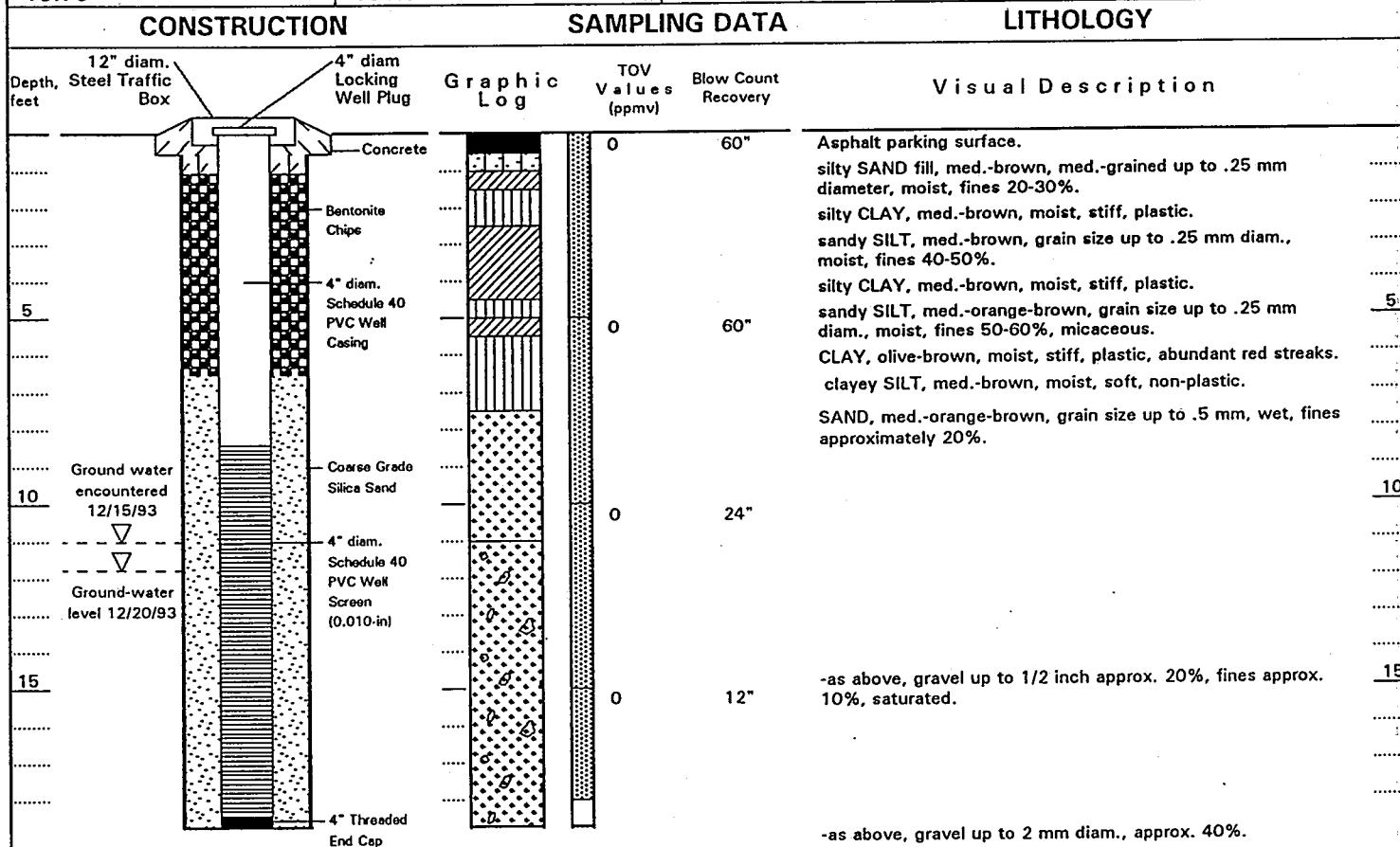
## Well Log

Well: A-6  
Page 1 of 1

**Client:**

Safety-Kleen Corp., Wichita, Kansas

Safety-Kleen Corp., Wichita, Kansas		
Date Started: <b>DEC 15 93</b>	Date Completed: <b>DEC 15 93</b>	Permit Number:
Logged By: <b>B. Heesen</b>	Driller: <b>Mike Stone</b>	1/4, 1/4, S, T, R:
Drilling Co.: <b>Layne Western, Inc.</b>	Drilling Rig: <b>CME-75</b>	Borehole Diameter: <b>12"</b>
Method: <b>Hollow-Stem Auger</b>	Measuring Point Elev. (ft.-msl): <b>101.06</b>	Sample Type: <b>Continuous Split Barrel</b>
Total Depth (ft): <b>18.75</b>	Ground Surface Elev. (ft.-msl): <b>101.5</b>	Location: <b>East of SE corner of Fahnestock's building.</b>





TriHydro Corporation  
920 Sheridan Street  
Laramie, Wyoming 82070  
(307) 745-7474

## Well Log

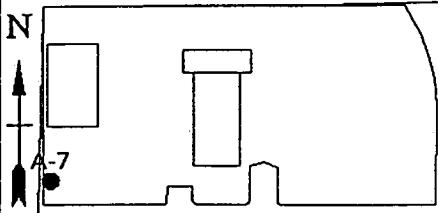
Well: A-7  
Page 1 of 1

**Client:**

Safety-Kleen Corp., Wichita, Kansas

Date Started: <b>DEC 15 93</b>	Date Completed: <b>DEC 15 93</b>	Permit Number:
Logged By: <b>B. Heesen</b>	Driller: <b>Mike Stone</b>	1/4, 1/4, S, T, R:
Drilling Co.: <b>Layne Western, Inc.</b>	Drilling Rig: <b>CME-75</b>	Borehole Diameter: <b>12"</b>
Method: <b>Hollow-Stem Auger</b>	Measuring Point Elev. (ft.-msl): <b>99.57</b>	Sample Type: <b>Continuous Split Barrel</b>
Total Depth (ft): <b>18.3</b>	Ground Surface Elev. (ft.-msl): <b>100.0</b>	Location: <b>East of SE corner of Fahnestock's building, next to Anna St.</b>

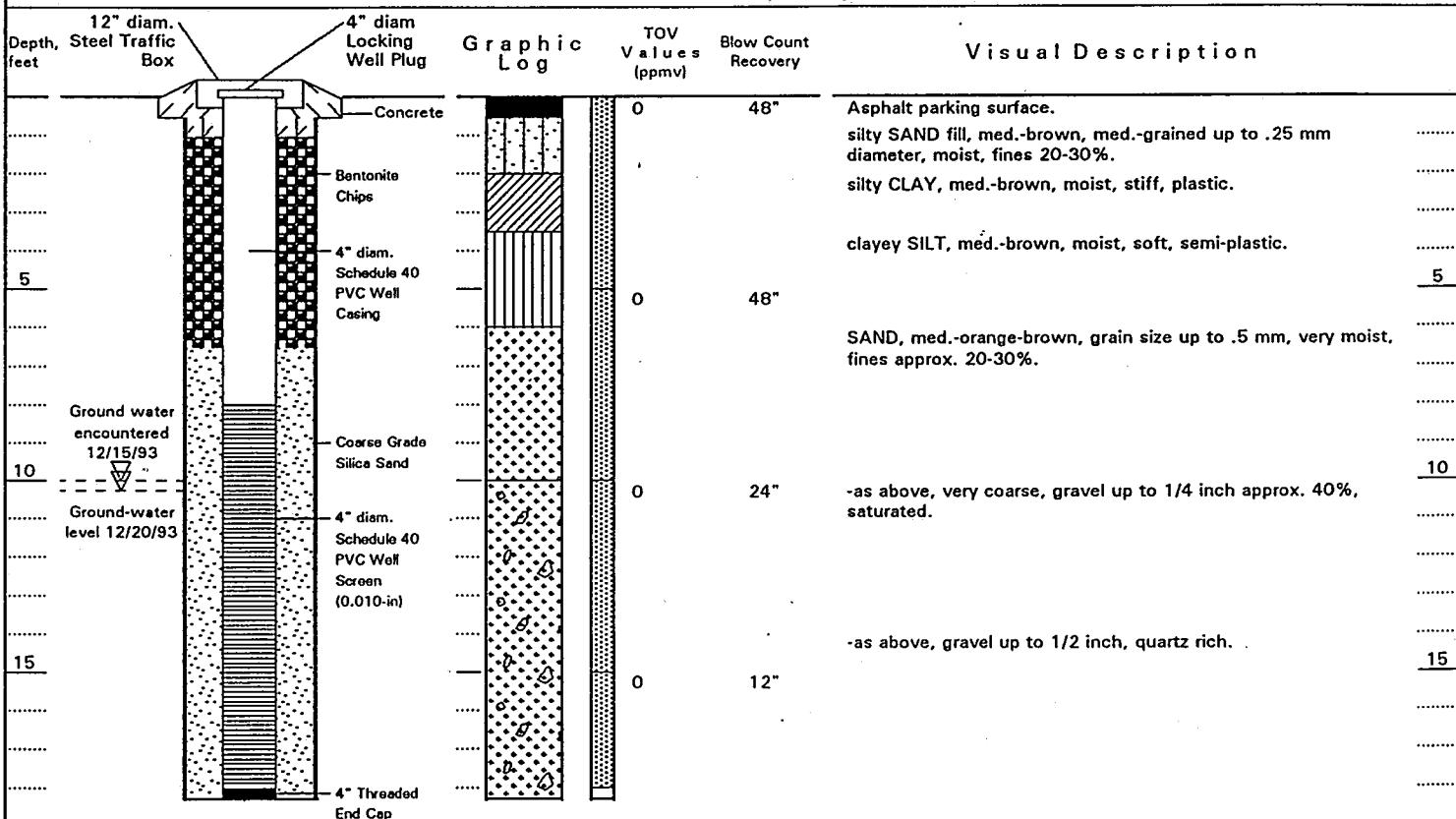




## **CONSTRUCTION**

## SAMPLING DATA

## LITHOLOGY



Interval Sampled →  
Sample Retained →



TriHydro Corporation  
920 Sheridan Street  
Laramie, Wyoming 82070  
(307) 745-7474

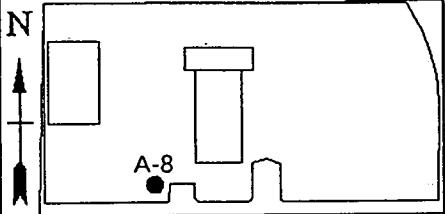
# Well Log

Well: A-8  
Page 1 of 1

Client:

Safety-Kleen Corp., Wichita, Kansas

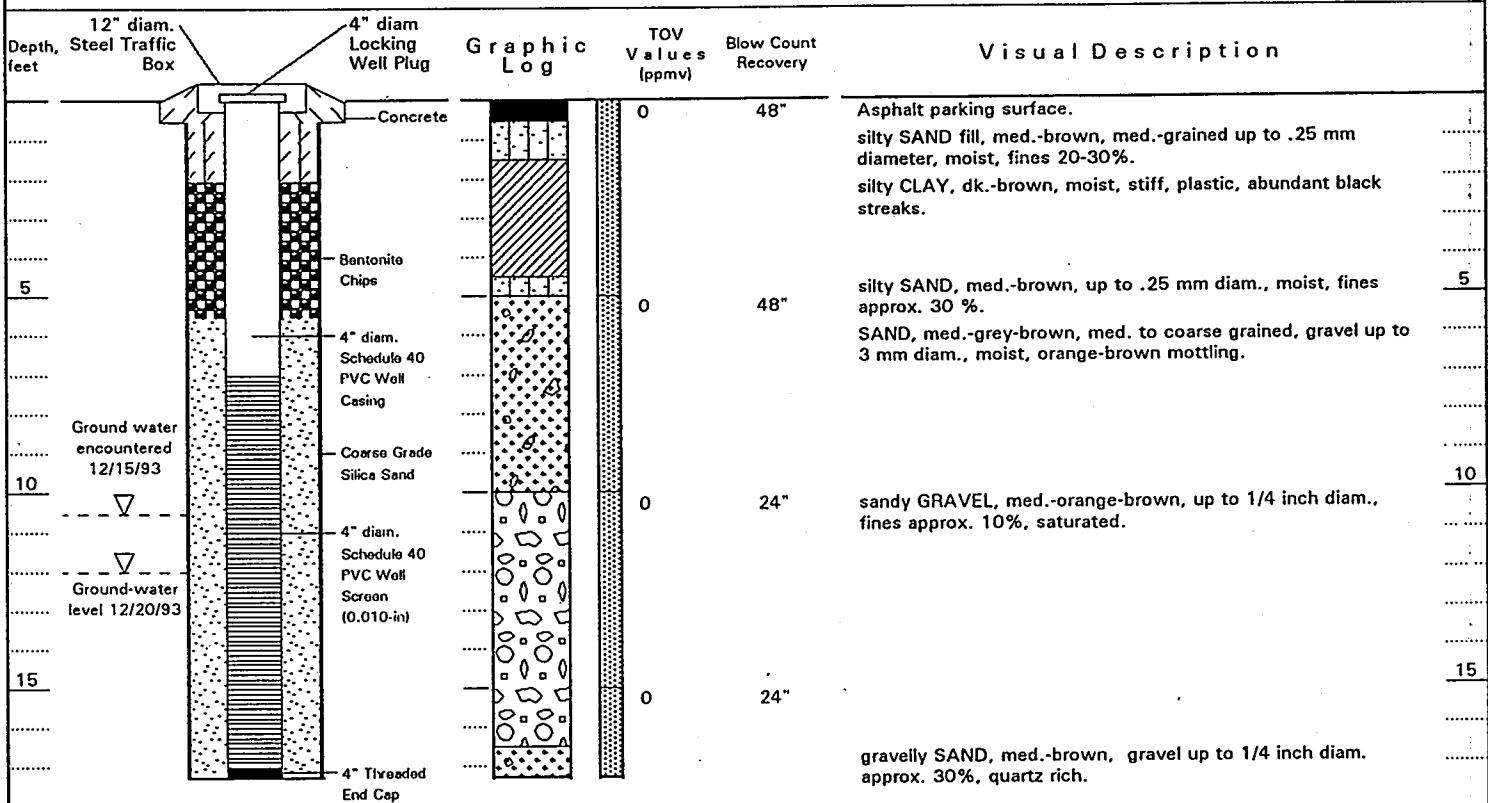
Date Started:	Date Completed:	Permit Number:
DEC 14 93	DEC 14 93	
Logged By:	Driller:	1/4, 1/4, S, T, R:
B. Heesen	Mike Stone	
Drilling Co.:	Drilling Rig:	Borehole Diameter:
Layne Western, Inc.	CME-75	12"
Method:	Measuring Point Elev. (ft.-msl):	Sample Type:
Hollow-Stem Auger	99.30	Continuous Split Barrel
Total Depth (ft):	Ground Surface Elev. (ft.-msl):	Location:
17.3	100.0	In NE corner of drive to Fahnestock's property.



## CONSTRUCTION

## SAMPLING DATA

## LITHOLOGY



ATTACHMENT C

WELL REPAIR DIAGRAMS

CORRECTIVE ACTION  
QUARTERLY PROGRESS REPORT  
SAFETY-KLEEN CORP. SERVICE CENTER  
WICHITA, KANSAS

memo

To: Brian Meyer (Loyne Weston)  
From: Jack Bedessem (Tri-Hydro Corp.)  
Date: 10/14/92

#560/679

Subject: Monitoring Well Repair At Safety-Kleen Corp Facility  
Wichita, KS 1311 S. Anna

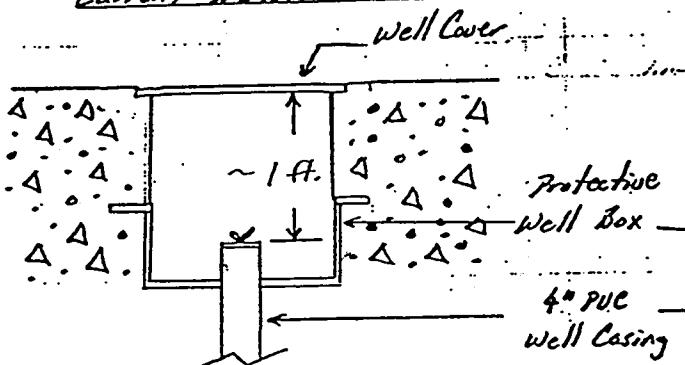
Provide Cost Estimate To Repair Wells A-1 and A-5.

Branch Facility Contact - Scott Heseltine (316-992-5001).

Please call branch prior to inspecting wells.

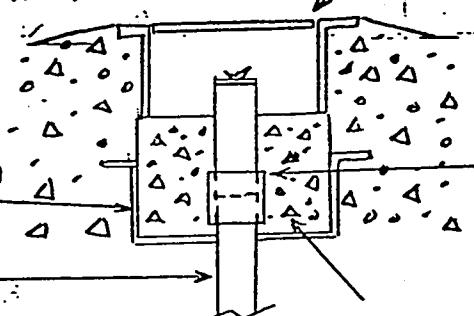
Call if questions

Current Detail Well A-1



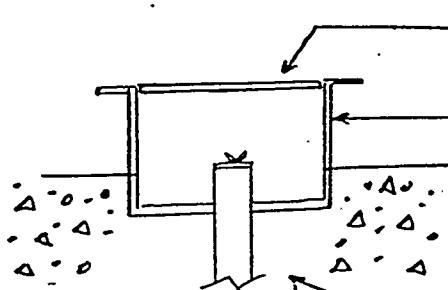
Up-Grade Detail Well A-5

Install New Well Box  
And Protective Cover

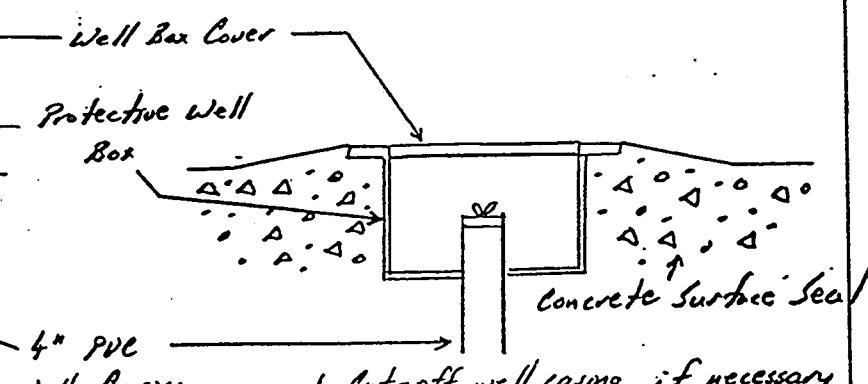


4" PVC coupling And Extensor  
(Do Not Use Solvent Cement  
To Affix Coupling)

Current Detail Well A-5



Upgrade Detail Well A-5



1. Cut-off well casing, if necessary
2. Remove/Replace Protective Well Box.
3. Replace Concrete Surface Seal
4. Refinish Concrete Surface Seal  
To Slope Away From Well

Figure C-1: Well Repair Diagrams, Safety-Kleen Corp.,  
Wichita, Kansas.

ATTACHMENT D

SUMMARY OF EMISSIONS  
AND 1993 OPERATING RECORDS  
SOIL VAPOR EXTRACTION SYSTEM

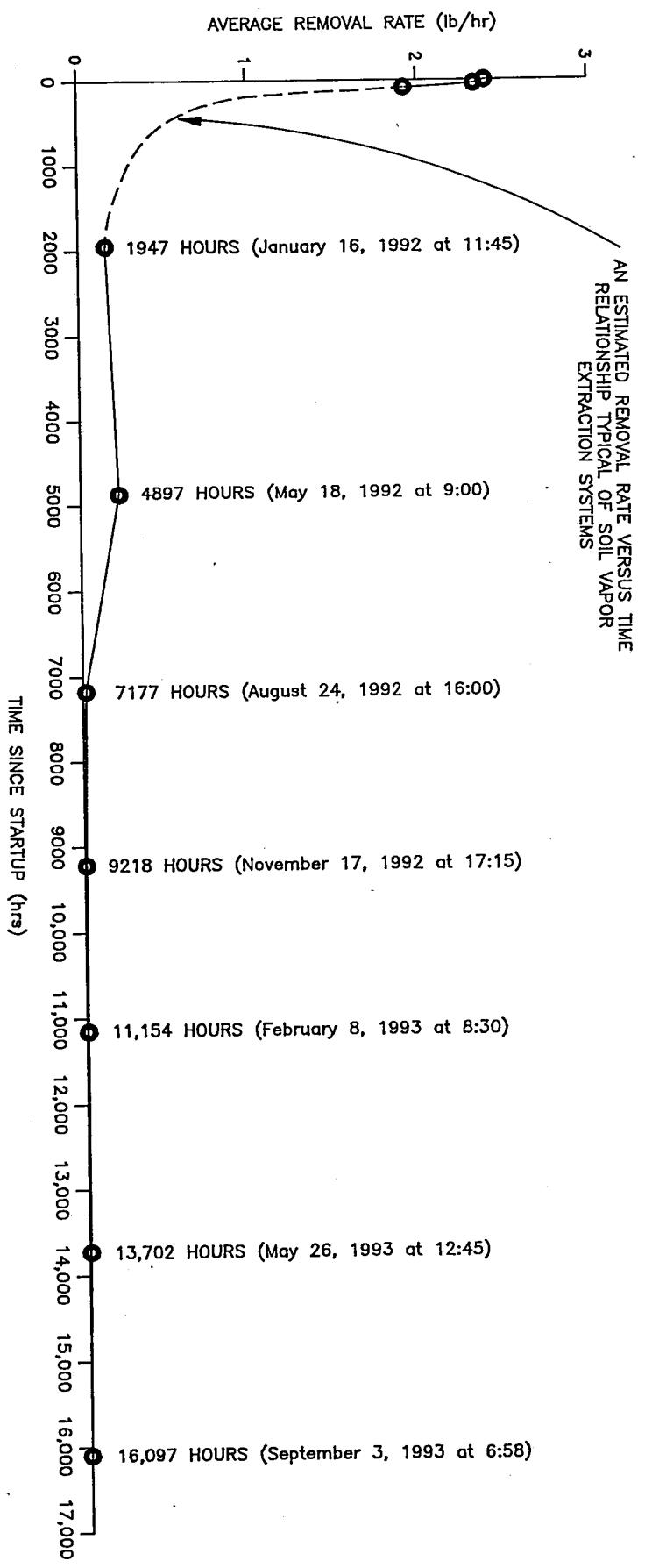
CORRECTIVE ACTION  
QUARTERLY PROGRESS REPORT  
SAFETY-KLEEN CORP. SERVICE CENTER  
WICHITA, KANSAS

Table D-1. Summary SVES Emissions, Total VOCs Removal, Safety-Kleen Corp. Service Center, Wichita, Kansas.

Sample Date/Time	Total VOCs <sup>1</sup> (mg/kg)	Average Flow Rate <sup>2</sup> (scfm)	Average Removal Rate <sup>3</sup> (lb/hr)	Incremental Total Removed (lb)	Accumulated Total Removed (lb)
10-27-91/9:30	1209	441	2.40	--	--
10-28-91/9:30	1183	441	2.35	57	57
10-29-91/10:00	976	441	1.94	53	110
1-16-92/11:45	82	438	0.16	819 <sup>4</sup>	929
5-18-92/9:00	128	391	0.23	575	1,504
5-21-92/16:00	121	331	0.18	0 <sup>5</sup>	1,504
8-24-92/16:00	11	399	0.02	285	1,789
11-17-92/17:15	5	390	0.01	29	1,818
11-19-92/16:30	12	370	0.02	0 <sup>6</sup>	1,818
2-8-93/8:30	<5	378	<0.01	<28	1,840
5-26-93/12:45	<5	150	<0.01	<10	1,850
9-3-93/6:58	<5	331	<0.01	<28	1,850
12-20-93 <sup>6</sup>	--	368	--	--	--

Note:

- <sup>1</sup> Mineral spirits was the only volatile organic compound (VOC) detected in the vapor samples analyzed by Method 8260 (USEPA SW-846).
- <sup>2</sup> Average flow rates are based on standard conditions.
- <sup>3</sup> Average removal rates are based on the density of air at standard conditions (0.075 lb/ft<sup>3</sup>).
- <sup>4</sup> The incremental removal during the quarter period was estimated based on a typical time versus removal curve for a soil vapor extraction system.
- <sup>5</sup> The system was shut down for three days as part of the semiannual soil gas survey to evaluate the performance of the system.
- <sup>6</sup> SVES emissions not monitored this sampling event.



ESTIMATED TOTAL VOC REMOVAL  $\approx$  1850 lb.

FIGURE D-1 :VOC REMOVAL, SVES, SAFETY-KLEEN CORP. SERVICE CENTER, WICHITA, KANSAS

MAR 23 '93 17:19

FROM SAFETY-KLEEN 6-195-01

PAGE .002

Wichita, KS  
Sues Field Measurements (Daily)

Site	Time	Inlet Temp (°F)	Inlet vacuum	A pressure (in-H <sub>2</sub> O)	Effluent Pressure (PSI)	Effluent Temp. (°F)	Flow calculated (CFM)	Stack emissions (w/PID) (ppm)	Remarks
-1-93	8:20pm	41°	40	34	Q	61°	Q		
-2-93	1:00PM	40°	40	34	Q	61°	Q		
-3-93	7:30AM	40°	41	32	Q	71°	Q		
-4-93	9:00AM	40°	41	32	Q	>1°	Q		
-5-93	9:00AM	43°	41	33	Q	70°	Q		
-6-93	2:10	43°	41	33	Q	70°	Q		
-7-93	2:10	44°	42	30	Q	71°	Q		
2-8-93	12:00pm	Shut Down BY TRIHYDRO							
2-9-93	3:00pm	Shut Down BY TRIHYDRO							
2-10-93	10:30pm	Shut Down BY TRIHYDRO							
2-11-93	4:25pm	"							
2-12-93	4:00pm	"							
2-13-93	2:00pm	"							
2-14-93	2:00pm	"							
2-15-93	2:30pm	"							
2-16-93	2:00pm	"							
2-17-93	2:00pm	"							
2-18-93	2:41pm	34°	40	34	2	71°	Q		
2-19-93	8:24pm	34°	40	34	2	71°	Q		
2-20-93	9:00pm	34°	42	36	Q	72°	Q		
2-21-93	2:14pm	33°	41	34	Q	65°	Q		
2-22-93	2:14pm	33°	42	34	Q	66°	Q		
2-23-93	4:00pm	32°	42	34	Q	65°	Q		
2-24-93	2:00pm	42°	43	34	Q	65°	Q		
2-25-93	2:00pm	42°	42	33	Q	65°	Q		
2-26-93	2:30pm	42°	42	33	Q	60°	Q		
3-2-93	2:00pm	42°	42	30	Q	71°	Q	Q	
3-3-93	3:45	39°	42	31	Q	70°	Q	Q	
3-4-93	11:00AM	40	41	31	Q	70°	Q	Q	
3-5-93	6:00AM	41	40	32	Q	70°	Q	Q	

\* To be measured periodically by TritHydro Corporation Personnel

Safety-Kleen Corp. Branch Service Center  
Wichita, Kansas

## SVES Field Measurements (Daily) Page

Date	Time	Inlet Temp. (°F)	Inlet Vacuum (in-H <sub>2</sub> O)	Δ Pressure (in-H <sub>2</sub> O)	Effluent Pressure (psi)	Effluent Temp. (°F)	Flue Calculations (cfm)	Stack Emissions w/ P10 (ppm)	Remarks
5-25-93	0905	—	—	—	—	—	—	—	start-up
	0910	60°	90	32	0	65		0.6	
	0925	60°	40	30	0	100		0.7	
	1030	60°	44	10	0	100		0.5	
	1100	60°	45	0	0	100		0.6	shut-down
	1630	/	/	/	/	/	/	/	start-up w/ Air dilution @ 5 in Hg
	1645	65°	26	14	0	100		0.8	
	1700	65°	26	12	0	100		0.5	
	1730	65°	26	12	0	100		0.7	
	1830	65°	26	12	0	100		0.6	
5-26-93	0710	60°	26	12	0	100		0.8	
	0830	62°	26	12	0	100		0.1	
	1000	70°	26	13	0	100		0.0	
	1500	70°	25	13	0	100		0.1	
5-27-93	0945	68°	25	13	0	95			
6-2-93	0950A	72°	25	11	0	100			
6-4-93	9:25A	70°	25	11	0	90			
6-7-93	8:25A	74°	25	11	0	100			
6-8-93	9:15A	78°	25	11	0	100			
6-9-93	11:00A	81°	25	12	0	105°			
6-10-93	10:30A	81°	25	12	0	105°			
6-11-93	11:25A	82°	25	12	0	105°			
6-14-93	11:25A	80°	25	12	0	105°			
6-15-93	9:05A	79°	25	12	0	100°			
6-16-93	10:05A	82°	25	12	0	110°			
6-17-93	9:55A	80°	25	12	0	105°			

\* To be measured periodically by TritHydro Corporation personnel

Safe-Kleen Corp. Branch Service Center  
Wichita, Kansas

## SVES Field Measurements (Daily) Page \_\_\_\_\_

Date	Time	Inlet Temp. (°F)	Inlet Vacuum (in-H <sub>2</sub> O)	Δ Pressure (in-H <sub>2</sub> O)	Effluent Pressure (psi)	Effluent Temp. (°F)	Flow Calculations (cfm)	Stack Emissions w/ P10 (ppm)	Remarks
6-18-93	9:58A	80°	25	12	0	110°			
6-21-93	10:05A	97°	25	12	0	110°			
6-22-93	8:20A	79°	25	12	0	105°			
6-23-93	9:00A	80°	25	12	0	100°			
6-25-93	11:00A	80°	25	12	0	105°			
6-28-93	9:30A	79°	25	11	0	100°			
6-29-93	8:15A	80°	25	12	0	105°			
6-30-93	8:30A	81°	25	12	0	105°			
7-1-93	9:45A	81°	25	12	0	105°			
7-2-93	8:05A	81°	25	12	0	100°			
7-3-93	12:15P	81°	25	12	0	100°			
7-4-93	12:00P	80°	27	13	0	100°			
7-5-93	4:00P	80°	27	13	0	100°			
7-6-93	7:20A	80°	25	12	0	105°			
7-7-93	8:30A	79°	25	12	0	100°			
7-8-93	11:00A	80°	25	12	0	110°			
7-9-93	10:10A	81°	25	12	0	110°			
7-12-93	10:00A	82°	25	11	0	110°			
7-13-93	6:05P	90°	25	12	0	110°			
7-14-93	8:00A	89°	25	12	0	110°			
7-15-93	10:25A	85°	27	10	0	110°			
7-16-93	12:20P	92°	27	11	0	115°			
7-17-93	4:35P	92°	27	10.5	0	110°			
7-18-93	7:45P	90°	27	10	0	110°			
7-19-93	8:15A	82°	27	9.5	0	110°			
7-20-93	8:00A	81°	27	9.5	0	110°			
7-21-93	3:17P	91°	39	16	0	120°			
7-22-93	8:05A	88°	38	15	0	105°			

↓ unit off because of water approx 16 gal water

\* To be measured periodically by Trithydro Corporation personnel

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

DATE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
7-25-93	5:05p	82	35	16	0	110			leak off draining water 16 gal
7-26-93	11:00A	80	37	16	0	110			leak off drained 16 gal water
7-27-93	9:30A	WORM							water off 16 gal water
7-28-93	8:05A	69	35	18	0	105			drained 16 gal water
7-29-93	10:05A	79	34	16	0	110			drained 16 gal water
7-30-93	8:00A	80	34	17	0	110			
7-31-93	12:45A	91	37	18	0	130			drained 16 gal water
8-1-93	8:00A	90	32	18	0	129			
8-2-93	12:50p	92	32	18	0	130			
8-3-93	9:05A	84	33	17	0	110			
8-4-93	2:11PM	84	32	19	0	112	0		
8-6-93	8:20A	78	27	12	0	100			
8-7-93	10:45A	82	27	14	0	110			
8-8-93	2:30P	82	27	14	0	110			
8-9-93	10:21A	88	27	15	0	110			
8-10-93	8:50A	85	27	15	0	110			
8-11-93	9:48A	85	27	15	0	110			
8-12-93	11:15A	90	27	18	0	120			
8-13-93	10:15A	90	27	16	0	110			
* TO BE MEASURED PERIODICALLY BY TRHYDRO CORPORATION PERSONNEL									
8-14-93	6:10P	92	27	14	0	120			
8-15-93	7:48P	96	27	17	0	120			

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

DATE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
8-16-93	11:40A	98	27	14	0	120			
8-17-93	9:50A	92	27	14	0	120			
8-18-93	11:45A	100	27	14	0	120			
8-19-93	10:40A	98	26	14	0	120			
8-20-93	10:30A	92	26	14	0	120			
8-21-93	3:55A	100	26	14	0	125			
8-22-93	6:55A	97	25	14	0	120			
8-23-93	10:05A	96	23	13	0	120			
8-24-93	9:40A	90	26	14	0	115			
8-25-93	9:50A	90	25	14	0	115			
8-26-93	9:40A	90	25	15	0	115			
8-27-93	10:00A	90	22	15	0	120			
8-28-93	6:25P	89	32	27	0	120			
8-29-93	8:10P	90	32	27	0	120			
8-30-93	8:25P	89	32	27	0	120			
8-31-93	8:00P	85	32	28	0	110			
9-1-93	7:30A	90	32	27	0	110			
9-2-93	10:40A	92	32	28	0	110			
9-3-93	9:40A	89	32	26	0	110	331 <sub>TH</sub>		

\* TO BE MEASURED PERIODICALLY BY TRIHYDRO CORPORATION PERSONNEL

9-4-93 5:40P 91 32 28 0 110

9-5-93 1:00P 91 32 26 0 110

9-6-93 8:50P 79 34 27 0 100

9-7-93

9-8-93 - 12:45P 70 34 27 0 110

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

DATE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
9-7-93	11:40A	80	32	27	0	110			
9-8-93	12:45P	70	34	27	0	110			
9-9-93	9:00A	76	34	28	0	105			
9-10-93	9:00A	70			0	85			found unit off had flipped breaker
9-11-93	6:30P	70	32	28	0	110			
9-12-93	4:50P	74	32	26	0	110			
9-13-93	9:20A	74	32	28	0	110			
9-14-93	5P	74	32	28	0	105			
9-15-93	9:15A	70	32	29	0	100			
9-16-93	12:20P	74	31	29	0	105			
9-17-93	10:20A	72	31	29	0	100			
9-18-93	12:35P	74	31	29	0	105			
9-19-93	9:15P	74	31	28	0	105			
9-20-93	12:35P	80	32	28	0	110			
9-21-93	9:45A	76	32	29	0	105			
9-22-93	11:45A	72	32	29	0	110			
9-23-93	12:00P	74	32	29	0	100			
9-24-93	8:50A	70	32	28	0	100			
9-25-93	9:00P	72	34	27	0	101			
9-26-93	2:15P	72	34	27	0	101			

\* TO BE MEASURED PERIODICALLY BY TRHYDRO CORPORATION PERSONNEL

9-27-93 11:15A 70 34 27 0 101

2148  
2150

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

SVCS FIELD MEASUREMENTS (DAILY)									
TE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
9-28-93	10:20 A	70	34	.27	Q	100			
9-29-93	9:00 A	68	34	.27	Q	100			
9-30-93	7:35 A	68	34	.27	0	100			
10-1-93	2:00 P	74	34	.27	0	105			
10-2-93	6:30 P	72	34	.27	0	105			
10-3-93	10:00 P	72	34	.28	0	105			
10-4-93	4:50 P	78	34	.28	0	105			
10-5-93	1:15 P	79	34	.28	0	110			
10-6-93	9:00 A	72	34	.26	0	105			
10-7-93	4:10 A	74	34	.26	C	105			
10-8-93	12:40 P	74	34	.26	0	105			
10-11-93	12:25 P	67	32	.29	0	100			
10-12-93	1:40 P	70	32	.29	Q	100			
10-13-93		72	32	.29	Q	100			
10-15-93	11:00 P	69	33	.28	C	98			
10-16-93	11:16 A	70	36	.25	0	100			
10-17-93	4:45 P	68	35	.26	C	100			

\* TO BE MEASURED PERIODICALLY BY TRIHYDRO CORPORATION PERSONNEL

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

SVCS FIELD MEASUREMENTS (DAILY)									
DATE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
10-18-93	11:20	60	0	0	0	60			
10-19-93	10:00A	60	0	C	C	0			SUS off / Turned back on.
10-20-93	12:20P	66	34	27	C	100			
10-21-93	12:56P	66	34	28	C	99			
10-22-93	1:36P	64	34	28	0	99			
10-23-93	2:25P	64	34	26	C	94			
10-24-93	2:56P	66	34	26	C	94			
10-25-93	11:56A	66	34	26	C	94			
10-26-93	12:25P	64	34	28	C	94			
10-27-93	11:00A	62	32	28	C	94			
10-28-93	1:36P	64	32	28	C	94			
10-29-93	2:10P	56	32	26	C	97			
10-30-93	2:00P	54	32	28	0	90			
10-31-93		53	32	28	0	99			
11-1-93	12:00P	56	32	28	C	90			
11-2-93	2:10P	58	32	28	C	90			
11-3-93	4:10P	60	32	28	C	91			
11-4-93	5:20P	60	32	28	C	90			
11-5-93	1:45P	56	32	30	C	89			
11-6-93	3:00P	54	32	30	0	85			
* TO BE MEASURED PERIODICALLY BY TRIHYDRO CORPORATION PERSONNEL									
11-7-93	5:50P	52	32	28	0	89			

WICHITA, KS  
SVCS FIELD MEASUREMENTS (DAILY)

DATE	TIME	INLET TEMP (°F)	INLET VAC (M-H2O)	A PRESSURE (IN H2O)	EFFLUENT PRESSURE (PSI)	EFFLUENT TEMP. (°F)	FLOW CALC. (CFM)	STOCK EMISSION W/PID (PPM)	REMARKS
11-16-93	12:05	58	3.2	30	0	90			
11-16-93	11:45 A	56	3.2	30	0	85			
11-16-93	10:38 A	56	3.2	30	0	85			
11-16-93	9:30 A	56	3.2	28	0	90			
11-16-93	11:05 A	58	3.2	26	0	90			
11-16-93	6:50 P	52	3.2	28	0	90			
11-17-93	9:00 P	52	3.2	28	0	85			
11-15-93	8:45 A	50	3.2	28	0	85			
11-16-93	9:00 A	49	3.2	28	0	84			
11-17-93	9:45 A	50	3.2	28	0	85			
11-18-93	10:05 A	50	3.2	28	0	85			
11-18-93	11:05 A	52	3.2	30	0	85			
11-20-93	10:35 P	52	3.2	28	0	85			
11-21-93	7:00 P	52	3.2	28	0	85			
11-21-93	11:00 A	50	3.2	28	0	85			
11-23-93	11:00 A	54	3.2	28	0	90			
11-24-93	11:30 A	44	3.2	28	0	78			
11-26-93	12:30 P	44	3.2	30	0	69/79			
11-26-93	10:30 A	44	3.2	30	0	80			
11-28-93	5:20 P	50	3.2	30	0	80			

\* TO BE MEASURED PERIODICALLY BY TRIHYDRO CORPORATION PERSONNEL

Safey-Kleen Corp. Branch Service Center  
Wichita, Kansas

## SVES Field Measurements (by TriHydro personnel)

Page. 1

Date	Time	External Pressure								Remarks
		(OF) VE (C.H2O)	(vac) (open)	Vac. (C.H2O)	(OF) (C.H2O)	(OF) (C.H2O)	VE-3 (C.H2O)	VE-4 (C.H2O)	P.D (open)	
11-29-93	3:40p	50	32	30	0	80				
11-30-93	5pm	50	30	29	0	85				
12-1-93	3:35pm	50	30	32	0	85				
12-2-93	8:15A	49	31	30	0	85				
12-3-93	8:30A	50	30	30	0	85				
12-4-93	9:45pm	50	32	29	0	80				
12-5-93	9:15AM	50	32	29	0	80				
12-6-93	8:50A	50	32	30	0	80				
12-7-93	4:30P	50	32	30	0	80				
12-8-93	2:00P	50	32	36	0	80				
12-9-93	1:10P	58	32	30	0	85				
12-10-93	3:05P	56	32	36	0	80				
12-11-93	3:40P	50	32	30	0	80				
12-12-93	5:10P	50	32	29	0	80				
12-13-93	8:35A	50	32	28	0	80				
12-14-93	1:45P	48	32	28	0	75				
12-15-93	3:00P	48	32	28	0	75				
12-16-93	8:40A	48	32	28	0	75				
12-17-93	3:55P	50	32	30	0	80				
12-18-93	1:55P	50	32	30	0	80				
12-19-93		50	32	30	0	80				
12-20-93	1:50P	50	32	30	0	80				